Constituents of Plants Growing in Qatar VI Triterpenoids and Related Substances of *Glossonema edule*+

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Introduction

Glossonema edule N.E.Br. (family Asclepiadaceae) is one of the common plants growing in Qatar. The nutritive constituents, (amino acids, carbohydrates, fatty acids and trace elements) of the fruits (the edible part of the plant; local name Garawah or Yarawah) have been recently reported [1]. This work represents a part of the programme carried out by the Scientific and Applied Research Centre for evaluating the local plants.

Experimental and Results

Plant Material

The unripe fruits of Glossonema edule were collected from Al-Wabrah in March. The plant was kindly identified by Prof. K.H.Batanouny.

Isolation and Fractionation of the Components

About 250 gm of the dried powdered fruits were extracted with petroleum-ether (b.r. 60-80°C). The purified extract (1.3 gm.) was evaporated and the residue was dissolved in boiling acetone (100 ml), cooled and the precipitated fatty alcohol was filtered. The acetone-soluble fraction (1.06 gm.) was chromatographed on a column of Al_2O_3. Elution was affected with petroleum ether followed by petroleum ether-toluene mixtures and collecting fractions each of 20 ml.

TLC

Adsorbent: Silica gel G; solvent systems: toluene-acetone (90:10) and benzene-ethyl acetate (60:20); spraying reagent: 60% H_2SO_4, followed by heating at about 120-140°C for a few minutes

Condition of GLC

a) Hydrocarbons: Hewlett Pachard (H.P.) 5711 A + H.P. 3380, column: Mat, Ni 200, 6 feet x 1/8" packed with 30% Dexsil 300 on chromosorb WAW 80/100 mesh as stat.phase, carrier gas, nitrogen 30 ml/min., detector, FID, range 10, Hydrogen 30 ml/min., air 240 ml/min. temp.: 180-300°C, 4°C/min.

+Part V: Rizk,A.M., Heiba, H.I., Sandra,P. Mashaly, M. and Bicchi, C., J.Chromatog., **279**, 145 (1983)

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b) Sterols: Hewlett Pachard 5830 A, with FID detector and Hewlett-Pachard GC-terminal 18850, column:glass, 4 feet packed with 2% OV 101 on chromosorb W HP 100-120 mesh, temp: isothermic at about 250°C and programming 210°C for (4°C/min) and finally 270°C until run stop.

c) GC/MS of terpenoids: Finn, 9610, column, 6 feet x 2 mm packed with OV 225 3% on gas chromosorb Q, carrier gas, helium 40 ml/min., temp: column 250°C isothermic, injector 270°C, ion source 250°C.

Hydrocarbon fraction

Fractions;1-20 eluted with petroleum ether gave a crystalline substance (0.16 gm.) which was shown by GLC to be a mixture of homologous series of n-alkanes (C_{20} to C_{35}), of which n-C_{30} and n-C_{33} represented the major components.

α-Amyrin

Crystallization of the residue (methanol) obtained from fractions 32 - 65 (petroleum ether-toluene 50:50) afforded α-amyrin (0.18 gm.) m.p. 180-182°C (reported 186°C [2]. MS showed a molecular ion peak at m/e 426 ($C_{30}H_{50}O$) and fragment ions at m/e 411, 393, 272, 257, 218 (100%) and 203. The substance is identical with authentic α-amyrin (GLC, IR, MS).

β-Amyrin

Fractions 66-67 (petroleum ether-toluene 50 : 50);(0.1 gm) were shown by GC/MS to be a mixture of α-and βamyrin by comparison with authentic smaples. The MS of the first peak (β-amyrin)showed a molecular ion peak at m/e 426 ($C_{30}H_{50}O$) and fragment ions at m/e 411. 393, 272, 218 (100%) and 203.

Cycloeucalenol

GC/MS of fractions 77-78 (petroleum ether-toluene 50:50; 0.17 gm) revealed the presence of two components, the major one was identified as cycloeucalenol by comparison with an authentic sample [3]. MS showed a molecular ion at m/e 426 ($C_{30}H_{50}O$) and fragment ions at 411, 408, 393, 365, 343, 342 and 300.

Sterol Fraction

Fractions 88-99 (eluted with toluene) gave upon crystallization from methanol, a sterol fraction (0.08 gm) which melted at 133-134°C and was shown by GLC to be a mixture of β-sitosterol, campesterol, stigmasterol and cholesterol, β-sitosterol being the major component.

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